

Note on ν Scorpii. By Capt. Noble.

"In sweeping over the constellation of *Scorpii* on the night of the 5th instant, I discovered that the star ν (14) *Scorpii* (B.A.C. 5382) which is put down by Smyth in his *Celestial Cycle* as a double one, is in reality a triple, Smyth's B or ν^2 being itself exquisitely double. At page 354 of the first edition of the *Celestial Cycle* it is described as 'a neat double star.' Pos. $338^{\circ}5$, Distance $40''$, Epoch 1831.50. The persistence of great atmospheric tremor, coupled with the small altitude of the star, has hitherto prevented me from obtaining micrometrical measurements, but at a guess I should say that the position of Bb was somewhere about $40^{\circ}8$, dist. $2''$. I do not know whether this has ever been noticed before. At all events the discovery is original so far as I am concerned. The mean R.A. and Dec. of ν *Scorpii* for this year are,—

R.A.	$16^h 3^m 48^s.34$
Decl. S.	$19^{\circ} 5' 26''.65$

"*Forest Lodge, Maresfield, June 9, 1859.*"

Observatory at Sydney.—First Annual Report of the Astronomer (W. Scott, Esq.) to the Observatory Board, December 22d, 1858.

The following are a few extracts from this Report: —

"In submitting my first Annual Report to the Observatory Board, I take the opportunity of making a brief statement of the principal circumstances connected with the establishment of the Observatory, from my own appointment to the present time. In the year 1855 the sum of 7000*l.* was set apart by the Government of New South Wales for the purpose of establishing an Astronomical Observatory; further sums were also voted for the salaries of an astronomer and one computer, and for the purchase of meteorological instruments to be used at various stations in connexion with the proposed observatory.

"As it was thought desirable that the Astronomer should himself superintend the building of the Observatory, the Astronomer Royal of England was requested to select a suitable person for that office.

"The Astronomer Royal having decided on offering me the appointment, I at once accepted it, and entered on my duties on April 16th, 1856.

"As a large portion of the interval between that date and my departure for Sydney as the necessary preparations for the voyage would allow, was spent in the Greenwich Observatory, for the purpose of completing my knowledge of practical astronomy and making myself familiar with the routine of an observatory, and the most recent improvements in the construction and use of astronomical instruments.

"In attaining this object I was kindly assisted by the Astronomer Royal, to whom I am much indebted for his advice, and for the facilities which he afforded me during my residence at Greenwich. I embarked on the 1st July, and arrived at Sydney on 31st October, 1856.

"My first duty was to fix on a site for the proposed Observatory. For purely astronomical purposes I should have preferred a position farther inland, and at a distance from any town; but as it appeared desirable, for various reasons, that the Observatory should be in the immediate neighbourhood of Sydney, I could find no spot more suitable than that recommended by the Governor-General, close to the Signal Station at Fort Phillip, on which the Observatory now stands. It possessed the advantages of a good foundation on the sandstone rock of which the hill is composed, an unimpeded view, and a considerable exemption from smoke and dust; moreover, from the extent of the Government reserve on which it stands, there will be no difficulty in protecting it from the encroachments of neighbouring buildings.

"The site having been decided on, the planning and erection of the Observatory were conducted by Mr. Dawson, the Colonial Architect, acting on my instructions so far only as the scientific requirements of the Observatory were concerned.

"The building was commenced in May 1857, and is still unfinished, but was so far advanced as to admit of meridian observations being made in June 1858.

"During the interval between my arrival in the colony and the commencement of astronomical observations, I took the opportunity of visiting those places which had been fixed upon for meteorological stations, arranging the instruments and instructing the observers in their duties.

"In concluding these remarks, I may state that, having had a sufficient sum placed at my disposal for the establishment of an Observatory on a good and substantial scale, I have felt it my duty not to be led by false economy to proportion the building to the present state of the instruments at my disposal, but to erect an Observatory sufficiently comprehensive and commodious to satisfy all the astronomical requirements of the colony for the next century.

"Thence it is very probable that, when all is completed, a very small portion, if any, of the sum voted will remain to be disposed of.

"*Buildings.*—The whole of the buildings are completed, with the exception of the dome and interior of the Equatoreal Tower, which will be finished in a few days.

"They comprise the astronomer's residence, which was completed so far as to be habitable, and occupied on the 11th of April last.

"The Astronomer's Office, containing also the library of the Observatory.

"The Computer's Room, at present unoccupied, and a space for unused instruments, &c.

"The Time-ball Tower, which was so far completed as to be made use of on 5th June last.

"The Transit-Room, completed some time in June.

"The Equatoreal Tower, which is still unfinished.

"The Transit-Room is adapted for the reception of two meridian instruments, by means of two sets of shutters in the walls and roof.

"The wall shutters, which are hung on ordinary hinges, and open inwards, have nothing remarkable in their construction.

"The roof shutters are peculiar, but very simple; they open inwards by their own weight, and are closed by means of a rope acting on one arm of a lever, the other arm of which is connected by a jointed rod with the shutter; the force required to close them is very trifling, and they are kept closed by belaying the rope to pins fixed to the wall.

"In order that they may not interfere with each other, one shutter is hinged to the east, and the other to the west side of the opening; the south shutter is capped by an iron ridge-piece, which projects over the north shutter when closed, so as to exclude the rain, which beats for the most part on the south side of the building. A great objection to this style of shutters is that they open inwards, which renders it very difficult to make them quite rain-proof.

"The shutters over the transit instrument are found to admit a considerable quantity of rain, if accompanied by high wind. It is absolutely necessary that this defect should be remedied before the meridian circle is mounted; and it is hoped that a simple expedient which is about to be adopted will have the desired effect. The wall shutters admit a great quantity of rain, a defect which is of much less importance than in the case of the roof shutters, and which may be to a great extent, though I fear not wholly, remedied.

"The Transit-Room is 24 feet long and 17 broad; the width of the meridian opening is 14 inches. I defer the description of the Equatoreal Building until I shall have an opportunity of testing, by experience, the working of the revolving dome and shutters.

"In addition to the works above mentioned, a small piece of ground has been enclosed on the north-east and south sides of the Observatory; that on the south side, 45 feet in depth, is set apart for the reception of the meteorological instruments."

Instruments.—Under this head are mentioned a transit instrument, of $3\frac{3}{4}$ inches aperture, by Troughton; a meridian circle (diameter not stated) in course of being repaired in England, under the superintendence of the Astronomer Royal; a mural circle of two feet in diameter which had been formerly used at the Paramatta Observatory; an achromatic telescope of

$3\frac{1}{4}$ inches aperture, equatorially mounted; and various smaller instruments. Several defects of the transit instrument are pointed out, which destroyed all confidence in the results furnished by it. The mural circle had not been set up, but appeared to be complete, with the exception of two microscopes sent to England with the meridian circle. The equatoreal was very defective, but might be so far repaired as to be used in the observation of occultations and eclipses.

“*Clocks.*—Those at present in use are an eight-day clock by Hardy, keeping sidereal time, and used in transit observations, and a thirty-day clock by Grimaldi, keeping mean time.

“There are considerable irregularities of rate in one or both of these clocks, but in consequence of the imperfections in the transit observations, I am unwilling to give any decided opinion at present as to their respective merits. There are two other clocks, of no great value, one by Breguet, formerly used as mean-time clock at Paramatta, and one by Barraud, of which the mercurial pendulum has been replaced by a cylinder of lead.

“There is also a box chronometer by Dent, at present used in dropping the time-ball, and a pocket chronometer by Dallas.

“*Time-Ball Apparatus.*—Complete and working satisfactorily, with one exception, that, owing to an inequality in the bore of the air-cylinder, the air escapes at one point too rapidly, and allows the ball to strike somewhat heavily at the end of its descent; this defect is not serious, and may be remedied, if thought desirable, without any great difficulty.

“*Work of the Observatory.*—In consequence of the defects of the transit instrument, already described, and the absence of the meridian circle, no observations can as yet be made of sufficient accuracy to be worthy of publication. I therefore confine myself to the observation of a few *Nautical Almanac* stars every night for the purpose of obtaining the correct time; also, when opportunity offers, of the moon and moon-culminating stars, for determining the longitude of the Observatory.

“The amount of work to be done being thus limited, I have not thought it desirable to appoint a computer until shortly before the arrival of the meridian-circle, after which there will be abundant occupation for a much larger staff than I can expect to have at my disposal.

“Previously to the acquisition of an efficient equatoreal instrument, which cannot be expected to take place within the next twelve months, my attention must necessarily be confined to meridian observations. These may be divided into two sets, namely, 1st, observations of clock-stars, that is, stars given in the *Nautical Almanac*, or others, whose positions have been accurately determined, for ascertaining the clock-errors and rates; observations of the right ascensions and declinations of stars whose positions are not yet determined with sufficient accuracy, consisting for the most part of stars south of the zenith. I propose at first to pay particular attention to stars

which are nearly vertical to Sydney, and other parts of the colony, with a view to their future employment in the accurate determination of latitude with the zenith micrometer.

"My plans, however, for the work of the Observatory are not definitely fixed, and may be somewhat modified by the replies to letters which I have addressed to the astronomers at the Cape of Good Hope and at Santiago, with whom it is desirable that I should act in concert. I have had no means as yet of determining accurately the latitude of the Observatory.

"The longitude, as deduced from twenty-one observations of the moon and moon-culminating stars, is $10^{\text{h}} 4^{\text{m}} 49^{\text{s}}.0$. This determination is, of course, unsatisfactory, owing to the defects of the transit-instrument; the amount of probable error is 3.5 seconds, and the discrepancies between the different determinations are not above one-third as great as those which occur in Mr. Rümker's determinations of the longitude of Paramatta; this superior accuracy must be attributed to the increased accuracy of the lunar tables.

"The time-ball, which was dropped daily at mean noon, is now dropped at 1 P.M., as being a more convenient hour; the contemplated arrangements for dropping it by the action of the mean-time clock have not been carried out; at present, a corrected chronometer is carried to the room in which the machinery is placed, and the ball dropped by a touch of the finger.

"The time thus indicated may be considered correct within half a second, except in case of a succession of cloudy nights rendering observations impossible, in which case an accumulation of errors of clock-rates may lead to an error of more than a second in the time-signal."

Letter from Mr. G. P. Bond to Mr. Carrington.

Will you have the kindness to communicate to the Astronomical Society the following elements of the new Comet, which was discovered independently at three places in the United States, viz., Ann Arbor, April 23d; Washington and Cambridge, April 27th, by Messrs. Watson, Ferguson, and Tuttle, respectively.

*Observatory of Harvard College,
Cambridge, Mass., May 5, 1859.*

Elements, by T. H. Safford.

T	1859, May 29 ^d .0030	Washington M.S.T.
	Log q	9.30403
	ω	281 59.66
	Ω	357 41.77
	i	94 52.78

} Equinox, April 27th